July 15, 2011

ERGOT IN WHEAT

Ergot is a disease of the inflorescence of cereals and grasses caused by the fungus Claviceps purpurea. Ergots, compact masses of black, fungal mycelium, are also known as sclerotia. The sclerotia are produced instead of normal grain. How many times have I talked about this disease to growers in the last ten years? How about not even once, but this year is different.

The ergot fungus is endemic to the Great Plains and is more common in rye and triticale than in wheat, barley, and oats. Many wild and cultivated grasses are also susceptible which is how fungus spores blow into fields. It's the disease triangle, the timing had to be perfect this year. If there were disease spores present in the field environment, under cool, wet cloudy conditions, during an extended flowering period, that set the stage for potential ergot in our wheat.

UNL Professor Stephen Wegulo would like to analyze the situation better by having wheat growers submit samples from this year's wheat crop from wheat that is binned on farm or wheat that growers have saved back for seed. Please drop off a sample in a one gallon zip lock bag at the Extension office with your name and wheat variety name. He will analyze for ergot at his expense and I will take samples to East Campus. You can even leave samples off for me at the Saline County Fairgrounds, Tuxedo Park, July 27th-31st. By August 1st, I will submit the samples to Stephen in Lincoln. Because ergot can contain toxic compounds or alkaloids, the federal grain standard to sell wheat is 0.05%. A sample I received from a grower near Milligan was calculated to be 0.015%.

Growers want to know what to do for next year. The way to manage this disease and lower disease risk is through best management practices. The survival rate of sclerotia on the soil surface is about one year. It is not recommended to plant wheat-on-wheat where ergot was present. Plant clean, sclerotia-free seed this fall. Ergot does not have any effect on the other wheat seed at germination time.

Next spring, the ergot, if within 1 inch of the soil surface, can emit thousands of spores. That's why it's important to have clean seed, so don't spread the disease in a clean field that way. Fungicide seed treatment has no effect on the ergot at seeding and right now the jury is out on fungicide treatment at heading time.

Ergot, this year, came in from grassy areas next to fields. A good management practice to reduce risk is to mow headlands, roadsides, and waterways before the grass heads. Most, but not all, ergots can be removed from grain by cleaning it with gravity-type cleaning equipment. If it has been a while since you have purchased clean, certified seed wheat, now is the year to do that. It's important for livestock producers to know the straw itself does not contain any alkaloid compounds, it was the black seed like sclerotia that either fell to the ground in the combine tailings (the black sclerotia is lighter than wheat seed), went to the elevator or some may have remained in the straw. The largest risk livestock producers need to be aware of is with feeding the grain.

Animals that have consumed feed contaminated with ergots can exhibit an acute form of ergotism characterized by convulsions or a chronic form characterized by gangrene. Other forms of ergotism in animals include hyperthermia (high body temperature), lack of milk production, lack of mammary gland development, prolonged gestations, and early foal deaths in mares. Ergotism in humans is known as St. Anthony's fire and has occurred several times in human history, with serious consequences. It is thought that the Salem witchcraft trials of 1692 resulted from hallucinations and insanity caused by ingestion of ergoty flour.

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